

# The NIH Record

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## Dr. Malone Named NIH Acting Director

Dr. Thomas E. Malone, Deputy Director, has been named Acting Director of NIH as of July 1, 1981, by HHS Secretary Richard S. Schweiker.

## Dr. Fredrickson Leaves 28-Year NIH Career

Dr. Donald S. Fredrickson joined the National Heart Institute in 1953 as a clinical associate.

From 1955 to 1961 he worked in the Laboratory of Cellular Physiology and Metabolism, where he was clinical director from 1961 to 1966. At the same time he continued his research as head of the Section of Molecular Diseases, Laboratory of Metabolism, from 1962 to 1966.

He was appointed Heart Institute Director in 1966, serving in that capacity for 2 years. He combined this executive responsibility with research as chief of the Molecular Diseases Branch, from 1966 to 1974, and as director of intramural research, 1969 to 1974. He has spent 28 years of his career at NIH.

Dr. Fredrickson's earliest research interests centered on the metabolism of sterols. He focused on the structure of plasma lipoproteins, their importance in the transport of fats, and the genetic factors regulating their metabolism and concentration in blood.

It was during this early period that he discovered two new genetic disorders: Tangier disease (absence of high density lipoproteins) and cholesteryl ester storage disease, a lysosomal enzyme deficiency.

In 1965, Dr. Fredrickson and coworkers introduced a system of identifying and classifying blood-lipid abnormalities based on plasma lipoprotein patterns. From this work came the recognition of previously undiscovered monogenic causes of hyperlipidemia: type 3 and type 5 hyperlipoproteinemia and a condition now termed familial hypertriglyceridemia. The system received prompt acceptance by the World Health Organization and is currently used widely by laboratories around the world.

Other research findings by Dr. Fredrickson and colleagues include their first learning of several previously unknown apolipoproteins, and new knowledge describing the structure and function of various apoproteins.

(See *FREDRICKSON CAREER*, Page 5)

## Fredrickson NIH Years Yield Many Major Accomplishments and Program Initiatives



In 1975, Dr. Fredrickson became Director of NIH, a position he held for the last 6 years of his 28-year service at NIH.

In this position, he gave biomedical research direction and leadership in a society which has grown increasingly technological and rapidly changing in its social norm.

The following is a summation of major accomplishments and program initiatives during the "Fredrickson era."

- Orienting NIH and the biomedical research community to contribute more effectively to the national health effort. This included clarification of the boundaries of NIH's mission, particularly at the interface between research and health services and assumption of greater responsibility for technology transfer—identification, assessment and, where appropriate, the transfer of health research findings to health practice. The latter was achieved through initiation of consensus development conferences, improvement in clinical trials, and increased efforts to disseminate information to the public and practitioners.

- To assure the public of protection against hazards while permitting scientists to fully exploit research opportunities, guidelines were set for all government-supported and conducted research. And, a

mechanism—the Recombinant DNA Advisory Committee—was developed to review and change the guidelines when necessary.

- Gaining approval to begin construction on the Ambulatory Care Research Facility. Scheduled to open in October, the structure is designed to provide optimum environment for study and care of patients in close proximity to clinical and basic scientists working in the Clinical Center. The facility will accommodate about 300,000 patient visits each year, tripling the current number.

- Implementing, after the self-imposed research moratorium by leading scientists in 1975, the first code to guide research involving recombinant DNA.

- Reviewing and revamping, where necessary, the NIH peer review system.

- Following up on a 3-year study of the NIH system for reviewing grant applications, changes were adopted to provide applicants with fuller information on the critiques of their proposals, to open the process for selecting members of review groups, and to increase the number of women and minority scientists on review groups.

(See *FREDRICKSON YEARS*, Page 4)

# The NIH Record

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## FAES Announces Schedule For 1981-82 Concerts

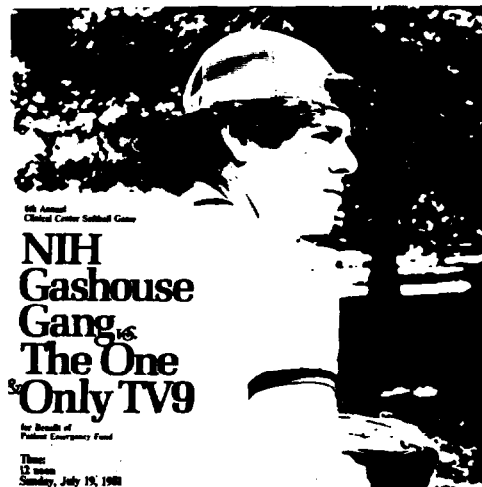
The Foundation for Advanced Education in the Sciences will present eight concerts in its 1981-82 Chamber Music Series, held on Sundays at 4 p.m. in Masur Auditorium. Sold by subscription, tickets cost \$56.

### Variety of Artists to Appear

Concert dates are: Oct. 4, Lillian Kallir, piano; Oct. 18, Michael Hume, tenor, Fred Scott, piano, and the Emerson String Quartet; Nov. 8, Colin Carr, cello; Nov. 22, Uto Ughi, violin; Dec. 6, Richard Stolzman, clarinet, Walter Trampler, viola, and Lee Luvisi, piano; Feb. 21, Jean Phillips Collard, piano; Mar. 14, Trio di Trieste with Piero Farulli, viola; Apr. 25, Gabrieli String Quartet.

For further information, contact the FAES office, Bldg. 10, Rm. B1L-101, 496-5272. □

## Medicine and the Media 'Play Ball' Again



There's relief in sight for all of those sports fans who are suffering from a lack of baseball this summer. The remedy is the Sixth Annual Patient Emergency Fund Softball Game that will be held on Sunday, July 19, at noon, at Georgetown Preparatory

## Dr. M. Grunberg-Manago Resumes FIC Scholarship

Dr. Marianne Grunberg-Manago, professor of biology, Institute of Biology, Paris, France, returned to NIH at the beginning of June to resume her FIC scholarship. She will be in residence for 3 months, during which time she will collaborate with Dr. Thressa Stadtman, Laboratory of Biochemistry, NHLBI, Bldg. 3.

Well-known for her work in microbiology and especially in biochemical genetics, Dr. Grunberg-Manago will participate in the FIC scholars' discussions of contemporary topics in biomedical research. She will also give a lecture (date to be announced) on Organization and Regulation of *E. coli* Genes Involved in Translation.

Until the end of August, Dr. Grunberg-Manago's office will be in Stone House, 496-1147. □

School, 10900 Rockville Pike. Free parking will be available on the grounds for 250 automobiles.

### Press Made Challenge

Medicine and the media will clash again when the "NIH Gashouse Gang" takes on "The One & Only TV-9" or the WDVN news team. The rivalry began when the Gashouse Gang trounced the TV-9 team 14-1 and 14-3 in 1979. News anchorman Mike Buchanan, captain of the TV-9'ers, immediately requested a rematch.

Following tradition, Dr. Mortimer B. Lipsett, Clinical Center Director, will throw out the first ball.

As in past years, there will be door prizes including tickets to Bullets, Capitals, Diplomats and Orioles games. The Capitals and Diplomats have also donated an autographed hockey stick and soccer ball.

Other prizes include: an autographed football signed by Sonny Jurgenson, Chris Hanburger, and Joe Theismann. Also tickets to King's Dominion, the Charles Town Races and Wolf Trap Farm events will be presented.

Hot dogs, and soda will be on sale, and all proceeds will be donated to the PEF. □

## CORRECTION

Due to an inaccurate submission, the location of the weekly NIH Duplicate Bridge Club meetings was erroneously reported. Meetings are held at the Bethesda home of its director, D'Arcy Albertsen, on Wednesdays at 7:30 p.m. For more information, call 652-4217. □

The common sense is that which judges the things given to it by the other senses.—Leonardo da Vinci (1452-1519) □



The NIH Recreation and Welfare Association held its annual meeting on June 10 in the Masur Auditorium. Several members were presented plaques this year in appreciation of their efforts in organizing different activities. The recipients are: Rose Shreiber (Women's Golf); Louis Mocca (Bicycle Commuter Club); James Harrington (Men's Golf); Al Lewis (NIH Jogging Club—The Health's Angels); and Doren Vest (Softball). Those not shown are: Norman Jones (Football) and Jerry Moore (NIH Jogging Club). Jerry Stiller, R&W Association president, presented this year's Presidential Award to Agnes Richardson. As has been the custom over the years, the R&W Association presented a \$3,000 check to the Clinical Center's Patient Emergency Fund.





## Laudatory Comments on Dr. Fredrickson Sent by Colleagues Throughout Nation

Reactions to Dr. Fredrickson's resignation by former NIH officials, Nobel laureates, and professional colleagues have been received at *The NIH Record* office since the public announcement. Some of the comments are as follows:

### Dr. Philip Handler

President of the National Academy of Sciences

Dr. Fredrickson brought to NIH great administrative skill, a profound understanding of biomedical science, a nimble wit, and articulate voice. He has carefully protected the highest standard of quality in biomedical research and research education while never losing sight of the principal goal of the NIH. He will be sorely missed.

### Dr. Joshua Lederberg

President of Rockefeller University

Rarely in history have we so benefitted from an illustrious career in these dimensions: basic scientific advance, broad clinical application, and scientific statesmanship.

### Dr. Robert Berliner

Dean of Yale Medical School

Don Fredrickson has served the NIH long and well in many capacities. While I am sure that those inside the Institutes regret his decision to leave, much as do those of us who relate to the NIH from the outside, I think all will agree that he has done more than his share for biomedical research and the public it serves.

### Dr. James H. Sammons

Executive Vice President of the American Medical Association

Donald Fredrickson's outstanding leadership at the National Institutes of Health has provided great stability in the health care arena. His talent and expertise will be missed by all of us who know that the work of the Institutes is an important part of our country's health care fabric. We extend to him our very best wishes in whatever the future may hold for him.

### Dr. Paul Berg

Nobel Laureate; Willson Professor of Biochemistry, Stanford Medical Center

Don Fredrickson's creative and extraordinarily effective leadership of the NIH deserves the gratitude and respect of the entire biomedical community. His wisdom, forthrightness and courage during the recombinant DNA debate reassured those who feared that the victory won in the laboratory would be lost on the political front.

### Mary Lasker

President of Albert and Mary Lasker Foundation

I am sad he is resigning. I am happy he was head of the NIH at the time of the major development of gene splicing, which will result both in important new pharmaceutical treatments for people, and a revolution in agriculture.

### Dr. Ronald W. Lamont-Havers

Director of Research Administration, Massachusetts General Hospital

I learned of his resignation with great sadness and regret. It was a great relief when I heard of his acceptance as Director of NIH. He was the right individual to head NIH during a turbulent period. He led it with great tact and wisdom. We sincerely hope NIH will be as fortunate in the caliber of its next Director.

### Dr. John B. Slaughter

Director of the National Science Foundation

As the head of a scientific agency that has had much to do with the National Institutes of Health under the able leadership of Dr. Donald Fredrickson, I sincerely regret his departure from the science scene in Washington. Don will be long remembered as an outstanding administrator, a superb scientist and a warm and supporting colleague. He will be missed by all of us who have had the opportunity to know and work with him. The National Science Foundation extends its warmest wishes to Don and his family as they embark upon a new and exciting career.

### Dr. Theodore Cooper

Executive Vice President of Upjohn Corporation, former HHS Assistant Secretary for Health

NIH is losing an authentic giant. He has demonstrated a remarkable range of contributions to science, medicine, philosophy, and statesmanship.

### Dr. Julius Axelrod

Nobel Laureate; Chief of the Section of Pharmacology, Laboratory of Clinical Science, NIMH

I'm sorry that Dr. Fredrickson is leaving. Dr. Fredrickson is a distinguished scientist and effective research administrator with style, taste and good judgment. Because of the leadership of Dr. Fredrickson and the past director, James Shannon, the NIH is a great medical research institute. Dr. Fredrickson will be hard to replace.

### Dr. John A. D. Cooper

President of Association of American Medical Colleges

Dr. Fredrickson was a very articulate spokesman for the biomedical sciences and played an important role in maintaining our research efforts in a less supportive environment. His leaving NIH epitomizes the difficulties which we will have in attracting competent scientists in the NIH organization.

### Dr. Philip Leder

Chief of the Laboratory of Molecular Genetics, NICHD

Don Fredrickson has provided those elements of leadership and taste that have served to make the NIH the precious resource it is. He will be greatly missed, not just as the respected scientist and physician

## FREDRICKSON YEARS

(Continued from Page 1)

- Exploring mechanisms to improve relationships among government, universities and private industry.

During the past year, using the Director's Advisory Committee as a forum, NIH has begun to examine issues related to the patenting of biological inventions, industry support for developmental health research, and the possibility of expanded industrial funding of basic research at universities.

- Maintaining the level of national research capabilities in a time of limited resources and shifting national priorities. This included a new taxonomy using SATT (science base, applications, technology transfer, and training) to portray the broadest breakdown of NIH research support and to focus planners and budget experts on all the important components of the NIH mission.

The "stabilization" effort was one of the major initiatives of the Fredrickson era. This called for an annual floor of 5,000 new and competing investigator-initiated research project grants, as the most critical element in sustaining the science base.

- Enhancing the NIH central planning process. This entails a systematic set of annual meetings to provide a forum for interaction and decisionmaking between the NIH Director and individual NIH Institute Directors. The reviews focus on each Institute's plans, opportunities for research progress, proposed allocation of resources, legislative proposals, and major program issues, and culminate in a refined program plan and planning budget level for the coming year.

### Clearer Definition Needed

In reviewing these programmatic changes during his tenure as NIH Director, he implied that the work set in motion is not yet completed. In a recent speech, he said, "There is a need to define more clearly the appropriate position of NIH—and the biomedical research community—with respect to the remainder of the health continuum; also, to close existing gaps between the research and health care communities when possible without weakening the Nation's biomedical research effort . . . and finally, to maintain national research capabilities in a time of limited resources and changing national priorities. □

he is, but as a wise conservator of a great institution.

### Dr. Robert Q. Marston

President of the University of Florida, former Director of NIH

I have fond memories of my association with Don Fredrickson when he was Director and later scientific director of the Heart, Lung, and Blood Institute. Thus I have followed with pride his leadership of the greatest biomedical research institution in the history of the world. □

The following are just a few of the reported major research advances made since 1975 by NIH scientists and grantees:

## 1975

NIH scientists working on virus-caused cancer in animals provided concrete evidence that virus genes become incorporated into a normal cell's gene profile and then direct production of abnormal DNA. This finding was of great value in understanding human cancer and virus diseases among humans.

Based on years of fundamental work, NIH grantees found a way to identify breast cancer victims who may respond well to hormone therapy. The assay, performed to find breast tumor tissues which contain estrogen receptors, helps physicians set a course of therapy which may circumvent the need for surgery or radiation.

## 1976

A new, effective treatment utilizing 13-*cis* retinoic acid was developed for patients with severe, pustular, intractable acne—which previously almost invariably led to permanent disfigurement of the face.

Basic research by NIH grantees and intramural scientists using recombinant DNA techniques helped to lay the foundation for the subsequent production of man-made insulin and human growth hormone from genetically engineered bacteria. These substances are currently being used in clinical trials with patients with diabetes and certain types of dwarfism.

NIH intramural scientists proved that a viral agent, HRVL, is the major cause of severe diarrhea in infants and young children during the winter months. Sporadic infantile gastroenteritis is an important disease throughout the world and may require hospitalization and intravenous feeding. Identification of the causative agent was a first step toward vaccine development.

Based on the work of NIH grantees, hay fever sufferers can look forward to being desensitized with fewer and safer injections. Scientists developed a polymerized form of ragweed antigen E—the major culprit in hay fever—that, when injected, affords the same benefits as the standard pollen extract in about one-third the time and with less risk to the patient.

## 1977

NIH-supported studies led to the development and licensing of a vaccine against pneumococcal pneumonia which accounts for a major portion of the 250,000 deaths that occur annually in the U.S. from pneumonia. The vaccine should be particularly useful for the elderly and those with serious chronic diseases—the group at high risk of dying from pneumonia.

A major advance in the fight against viral diseases, the first successful drug treatment of patients with herpesvirus encephalitis, was announced. A drug Ara-A, used intravenously, was shown to reduce both brain damage and death due to this highly fatal brain infection.

An NCI study showed that survival rates

for 6 of the 10 most common forms of cancer in the U.S. had gradually improved since the early 1960's. Increased survival was found for patients with cancer of the bladder, breast, colon, prostate, rectum and uterine corpus.

In a collaborative study supported by NIH, a vaccine to prevent bacterial meningitis caused by group A meningococci was shown to be effective in infants and young children.

NIH grantees showed that the drug cimetidine, taken orally with a normal meal, safely and effectively inhibits gastric acid secretion in patients with certain ulcers.

## 1978

NIH grantees found that venom from stinging insects provides superior immunotherapy for insect bite victims and that the extracts from whole bodies of insects—which have been routinely used—may provide little or no protection. As a result of this work, insect venoms are believed safe and effective in preventing life-threatening allergic reactions and are recommended for treatment for the hundreds of thousands of patients currently at risk.

NIH grantees reported that certain human cancer cells can induce high levels of interferon when in contact with white blood cells. This finding supported the theory that interferon—a naturally produced antiviral substance—may be one of the body's defenses against cancer.

## 1979

NIH funded research on an exciting new technique using a radioisotope and a scanning device that allows neuroscientists to watch the human brain in action. Known as PETT, positron emission transverse tomography, this scanner—used for research purposes rather than diagnostic ones—should enable scientists to evaluate brain chemistry before, during, and after a stroke; determine the response of a brain tumor to drug treatment; and allow for the probing of biochemical abnormalities in disorders such as Huntington's or Alzheimer's disease.

NIH grantees, using recombinant DNA techniques, succeeded in the molecular cloning of tumor viruses. This achievement, coupled with new techniques for identifying the proteins responsible for transformation, provides scientists with an unprecedented opportunity to understand the basic mechanisms of cancer and provide insights into the most fundamental aspects of tumor biology.

Intramural researchers developed a test that may ultimately help pathologists diagnose the spread of even a few breast cancer cells to adjacent lymph nodes. Because therapy differs for various types of cancer, quick identification of the source or suspect cells is valuable.

## 1980

NIH grantees were able to reverse diabetes in mice by transplanting into them normal islet cells from healthy rats. Although several obstacles need to be over-

come before this type of transplantation can be attempted in humans, this represents a major advance not only in the treatment of diabetes but also in overcoming the immunologic barriers to transplantation between species.

NIH scientists developed a procedure that may offer an alternative to in vitro fertilization for women with irreparable tubal damage. Using monkeys whose reproductive systems are similar to humans, the researchers removed an egg—shortly before the anticipated time of ovulation—from the ovary of each animal whose fallopian tubes had been surgically blocked. The egg from each animal was then injected into her fallopian tube near the uterus, beyond the blockage. After mating, 16 percent of the animals became pregnant and delivered apparently normal infants. Additional animal studies and eventual trials in women are needed to assess the safety and efficacy of this technique.

An NCI study has shown that patients with Hodgkin's disease, even in advanced stages, can be cured using a multidrug therapy. This disease—until now almost always fatal—strikes approximately 7,000 persons a year in the U.S.

NIH grantees and others conducted clinical trials which demonstrated the safety and efficacy of a hepatitis B vaccine. Mass immunization programs based on this success may ultimately affect not only the incidence of acute hepatitis B (now at about 100,000 cases per year in the U.S.) and the pool of chronic carriers (now at about 800,000 in the U.S.), but may also reduce morbidity and mortality from chronic active hepatitis, cirrhosis of the liver, and a certain liver cancer. □

## FREDRICKSON CAREER

(Continued from Page 1)

His research achievements have won him many honors and awards. He is a member of numerous professional societies in addition to the NAS and the American Academy of Arts and Sciences.

In 1978 he received the Gairdner Award, his most recent honor. He is also the recipient of several honorary degrees, including doctor of medicine from the Karolinska Institutet (1977), and doctor of science from Georgetown University School of Medicine (1981).

Born in Canon City, Colo., in 1924, Dr. Fredrickson received both his B.S. and M.D. degrees from the University of Michigan, and was certified by the American Board of Internal Medicine in 1957. He did postgraduate work at Peter Bent Brigham and Massachusetts General Hospitals and the Harvard Medical School prior to coming to NIH in 1953.

Internationally known for his expertise on lipid metabolism and its disorders, he became NIH Director July 1, 1975. Prior to this appointment, he had served for 1 year as president of the Institute of Medicine, National Academy of Sciences. Dr. Fredrickson is returning to NAS as a visiting scholar upon departing NIH, June 30. □

# THE FREDRICKSON ERA—



*The Early Days*

In 1965, Dr. Fredrickson, who was with the then National Heart Institute, accompanied President Lyndon B. Johnson on his tour of the Clinical Center.



President Jerry Ford attended Dr. Fredrickson's swearing-in ceremony in 1975. His oath of office was administered by then HEW Secretary Caspar W. Weinberger. Mrs. Fredrickson also participated.

## *Administrative Duties*



Dr. Fredrickson confers with former NIH Director Dr. James A. Shannon.



Over the years, Dr. Fredrickson and the NIH Directors have appeared at many Congressional hearings to give expert testimony.



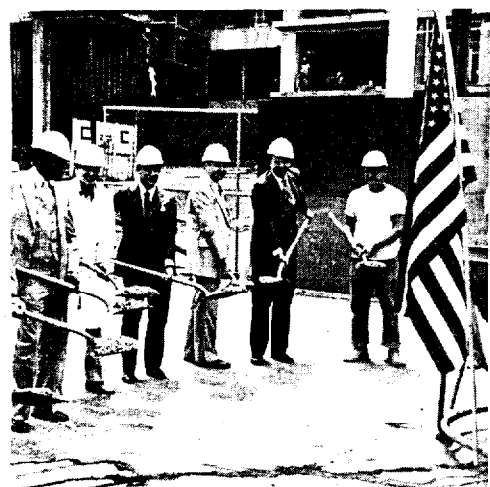
Dr. Fredrickson (c) discusses lipid research during a 1973 visit with Soviet professors Anatoli Klimov (l) and Helena Gerosimova (rear), and with Dr. Robert I. Levy, NHLBI. Dr. Fredrickson was a principal figure in coordinating the two-country research project.



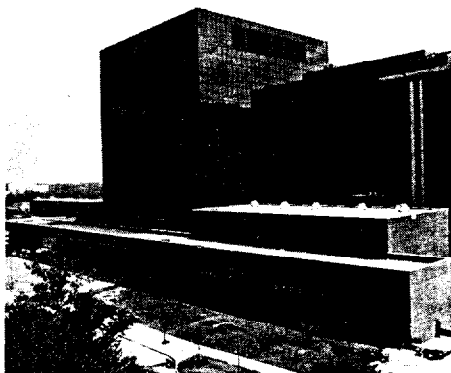
Despite his busy schedule, Dr. Fredrickson always found time to greet visitors such as the poster children from the Cystic Fibrosis Foundation.

# Physician, Researcher, and NIH Director

## NIH Directorship



In July 1979, Dr. Fredrickson and other dignitaries appeared for the "topping off" ceremonies at the ACRF.



The new Ambulatory Care Research Facility is a "new Bauhaus" where many research disciplines can work for the good of patients, says Dr. Fredrickson.



Hundreds of reports had to be studied and evaluated in-between trips across the Nation, and foreign visits to the USSR, China, and Africa.



Air Force One took President Carter and Dr. Fredrickson to inspect the damage from the Mount St. Helens eruption.



Dr. Fredrickson (c) joins NIH Nobel laureates Drs. Marshall Nirenberg (l) and Julius Axelrod (r) in congratulating Dr. D. Carleton Gajdusek upon learning of his selection as a Nobel Prize recipient in 1976.



Japan's Prince Hitachi and Princess Hitachi learned about NIH in 1978.



The world scientific community also sought Dr. Fredrickson's counsel. Dr. Hafdan Mahler (l), Director General of the World Health Organization, and Dr. Hector R. Acuna (second from r), Director of the Pan American Union, visited NIH to discuss joint research projects.

## Farewell



A capacity crowd of scientists and administrators heard Dr. Fredrickson's farewell address in the Masur Auditorium.

## Enzyme Believed To Trigger Cataracts in Diabetes

A major advance in cataract research is the identification of aldose reductase, an enzyme which triggers the formation of a certain type of cataract associated with diabetes. This finding, according to National Eye Institute intramural investigators, may have far-reaching implications because the enzyme could be involved in more serious complications of diabetes.

Aldose reductase in the eye lens, converts excess blood sugars to sorbitol (sugar alcohol) or polyols. Unable to move freely through cell membranes, the polyols accumulate and osmotically draw water into the lens cells. These cells eventually burst, gradually causing the opacity known as diabetic cataract.

### AR Role Elucidated

The so-called polyol theory explaining the biological role of AR was elucidated by Dr. Jin Kinoshita, formerly chief of the Laboratory of Vision Research and now NEI scientific director. He found that the formation of diabetic cataract could be delayed or even prevented in animals by blocking the enzyme with specific inhibitors.

Microscopic studies of the lenses of diabetic rats, which are ordinarily clouded by cataract within 4 to 6 months of onset, revealed no difference between the lenses treated with potent AR inhibitors and the lenses of nondiabetic control rats. The microscopic studies were conducted by Dr. Manuel Datiles, an NEI visiting scientist from the Philippines.

Recently, several new classes of AR inhibitors have been discovered by Dr. Peter Kador, NEI research chemist. These inhibitors are related to antiallergy compounds, man-made chemicals which interfere with mediators of allergic reactions. Dr. Kador found that not all AR inhibitors are equally potent in inhibiting AR from different tissues of the body.

## Dr. Kador Wins Rohto Award for Diabetic Cataract Research

Dr. Peter Kador, a National Eye Institute research chemist, received the first international Rohto Award for cataract research by young investigators. The presentation will be made annually by the Rohto Pharmaceutical Company of Japan.

Dr. Kador received the award for his research on inhibitors of aldose reductase, an enzyme which initiates the development of diabetic cataracts. Through basic studies on the enzyme, the mechanism of inhibitor action, and their interrelationships, several new classes of AR inhibitors have been developed.

### Education Noted

Aldose reductase, present in other body tissues, may also be involved in the development of additional more serious complications suffered by diabetics.

A native of Columbus, Oh., Dr. Kador has been with NEI since 1976. He received his Ph.D. in medicinal chemistry from Ohio State University in 1976, and his bachelor's degree from Capital University in Columbus in 1972.

For example, a certain inhibitor was found to be highly effective in inhibiting AR activity in human and rat lens tissue, while less potent in human placental tissue.

Evidently, several specific inhibitors are needed to counteract the AR activity in different parts of the body. Some AR inhibitors are now being tested in juvenile diabetic patients to find if the lens swelling which frequently accompanies the disorder can be blocked.

Preliminary data from other related research indicate that AR may be involved in the eye's healing process. During certain types of surgery, a portion of the cornea's outer layer, the epithelium, is removed. Normally, in nondiabetic patients, this tissue regenerates.

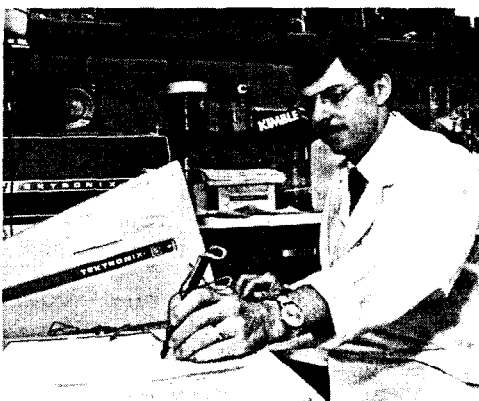
### Corneal Healing Delayed

In diabetics, however, corneal healing is often delayed and complications frequently arise. AR inhibitors used in diabetic animals have improved the healing of corneal epithelium following surgery.

Research on aldose reductase and cataract formation has led to a better understanding of the basic mechanisms responsible for other, more serious diabetic complications, Dr. Kinoshita noted.

For instance, a study of 36 diabetic persons recently showed that administration of an AR inhibitor significantly reduced symptoms of diabetic neuropathy, a motor nerve disorder. The inhibitor reversed impaired nerve conduction velocity in diabetic patients during the 27-week study, which supports the aldose reductase or polyol theory of neuropathy development in diabetics.

Researchers are also considering aldose reductase in the role it may play in diabetic retinopathy, one of the leading causes of visual impairment among middle-aged Americans. □



A plaque and \$1,000 were presented to Dr. Kador, for his research, during the recent Association for Research in Vision and Ophthalmology annual meeting in Sarasota, Fla.

He is a member of the Association for Research in Vision and Ophthalmology, the American Chemical Society (the medicinal chemistry section), Sigma Xi, and Rho Chi, a pharmacy honorary society. □



Drs. Datiles, Kador, and Kinoshita (l to r) of the NEI, review their new data on the enzyme, aldose reductase, which triggers the formation of diabetic cataracts, and is implicated in other serious complications of diabetes.

## Fed. Credit Union To Open Bldg. 31 Offices July 20

On Monday, July 20, the NIH Federal Credit Union will have the grand opening of their new quarters in Bldg. 31, Rm. 1A-10.

In that office, Loretta Rinker, branch manager, will supervise the loan department, member service for new accounts, share drafts, and certificates. Approximately 12 to 13 staff members will be employed there, in addition to 7 tellers.

Personal unsecured loans are being offered again at 18 percent interest. Used car loans are at 17 percent and new car loans are being offered at 15 percent. Student education loans are also being offered for both Federal and Maryland State programs.

Share secured loans are currently set at 9½ percent, enabling a member to borrow up to the amount held in a regular share account. Certificates are still offering higher interest rates than regular share accounts. The 6-month \$10,000 money market share certificate rate is set every Tuesday morning as determined by the U.S. Treasury Department the previous evening.

Regular \$1,000 share certificates held to maturity for 6 or 12 months, yield 9.9 percent interest; the 24- to 30-month certificates yield 12.75 percent. Regular share accounts are now at 6½ percent interest, compounded quarterly; share draft accounts are compounded daily at 5¾ percent.

In the future, the NIHFCU hopes to obtain additional space in the Bldg. 13 area. At present, the space is still being negotiated, but the plan has provisions for employing one loan person, a supervisor, and four to five tellers.

The Old Georgetown Road facility now holds the space management section on the second floor, and the rest of the building is occupied by the administrative functions of the NIHFCU. □

## 'The Ghost Train' Is Coming!

The NIH R&W Theatre Group needs carpenters, painters, stage crew, electricians, etc., to help with their upcoming play, *The Ghost Train*, scheduled to open July 31. Anyone interested may call Loren Ziller, 496-6385. □

# Dr. Gerald D. Aurbach Given Award For Bone and Mineral Research

Dr. Gerald D. Aurbach, chief of the Metabolic Diseases Branch, NIADDK, was recently named the first recipient of the William F. Neuman Award for distinguished achievement in the field of bone and mineral research.

The Council of the American Society for Bone and Mineral Research honored him at its annual meeting in Cincinnati.

Dr. Neuman, who died earlier this year, was a world renowned expert in bone and mineral metabolism. The award was established to honor individuals who share the scientific creativity, outstanding record of training, and openness and interest in people that he exemplified.

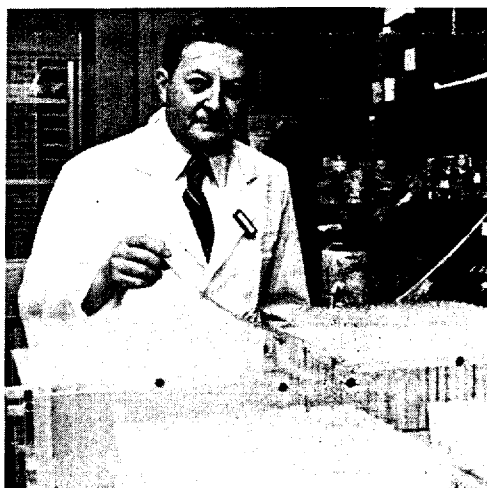
Dr. Aurbach's achievements have been in the endocrinological aspects of bone and mineral research. He was the first to isolate parathyroid hormone in its pure form and is a world leader in the study of the hormonal control of calcium metabolism.

The secretions of the endocrine system, such as parathyroid hormone, help to regulate levels of calcium and phosphorus in the blood. Various disorders of bone are related to errors in metabolism of parathyroid hormone and the related hormone, calcitonin, and are now being studied as a result of Dr. Aurbach's aggressive and pioneering research.

His work on the chemistry, physiology, regulation of secretion and mechanism of action of these active hormonal agents has aided substantially the current research on many clinical disorders of bone.

Dr. Aurbach's original isolation of parathyroid hormone led to the understanding of its structure and synthesis of the hormone. This was a collaborative project with Dr. John T. Potts' group, initially at NHLBI, then later conducted at the Massachusetts General Hospital.

He, together with an associate, Dr. Lewis



**Dr. Aurbach conducts assays as part of his research on hormone mechanisms of action.**

Chase, also discovered that the mechanism of action of the hormone was mediated through cyclic AMP.

With his colleagues in the Metabolic Diseases Branch, Dr. Aurbach characterized the physical properties of calcitonin and identified and described its receptors. Other important studies have ranged from mechanisms regulating parathyroid hormone secretion to interaction of active vitamin D metabolites with their receptors.

Of current interest to Dr. Aurbach is the role of impaired hormone receptor function in clinical problems of calcium metabolism, most recently pseudohypoparathyroidism.

He joined NIADDK in 1959 as a research associate. In 1973, he was appointed to his present position as chief of the Metabolic Diseases Branch. Since 1966 he has been a medical director in the U.S. Public Health Service. □

## Applications Invited for PHS Medical Epidemiology Training

The U.S. Public Health Service invites applications for a proposed extension of a training program in medical epidemiology. Up to 12 persons per year, who already have an M.D., a doctorate in an allied health profession, or Ph.D in a biomedical or behavioral science, may be accepted as staff fellows of the USPHS for a 3-year period of duty.

Applications received by Sept. 15 may be considered for service to begin on or about July 1, 1982. During the first year, each successful applicant will attend a university at government expense as a candidate for the M.P.H. or equivalent degree.

During the subsequent 2 years, individuals will work in research studies in association with senior epidemiologists in the participating agencies.

They are Alcohol, Drug Abuse, and Mental Health Administration; Centers for Disease Control; Food and Drug Administration; and the National Institutes of Health.

A matching procedure similar to the national intern matching will be employed to

assure that each individual is assigned to a preceptor whose area or expertise is of interest to the trainee, and consistent with his or her career plans.

Salaries will be provided according to the scale in effect for staff fellows in intramural research at NIH. Presently, the remuneration for a physician is \$30,000 per annum for the first year, with a \$2,000 increase annually for the second and third years. Educational costs for the first year are provided in addition.

Other basic requirements include 1 year of postdoctoral training or experience as of July 1, 1982; U.S. citizenship; and acceptability to an accredited university offering an M.P.H. or equivalent degree.

Further details of the program and application forms may be obtained from Dr. Robert S. Gordon, Jr., Special Assistant to the Director, NIH, Bldg. 1, Rm. 238. □

Instead of loving your enemies, treat your friends a little better.—E.W. Howe □

## Savings Bond Campaign Nets Large 1981 Increase

This year's NIH U.S. Savings Bonds campaign netted more than a 300 percent increase in employee participation as compared with the 1980 drive. Fifteen percent of all NIH employees were enrolled in the program by the campus-wide bond coordinators and canvassers.

Coordinated by the Division of Research Grants, the bond campaign was termed a success this year because of the higher interest rate available, a larger number of canvassers, R&W prizes, and the absence of parking fees.

Dr. Carl D. Douglass, DRG Director, drew the three raffle tickets for the R&W-sponsored lottery called "Be a Double Winner." Free lottery tickets were given to each employee who bought a new savings bond, or increased their allotment on previously issued bonds.

### Lottery Winners

The winners were: 1st prize: Thelma Jones, DRR, who won a \$50 U.S. Savings Bond; 2nd prize: Cida Hessing, CC, who won a Sony AM/FM portable radio; and 3rd prize: Florine Matthews, NIDR, who won a Sanyo pocket calculator.

A prize was also given to Bob Smith, CC, who sold more bond purchase pledges than any other canvasser in the drive. He was awarded two tickets to the Joffrey Ballet at Wolf Trap. □

### Assert Yourself!

Rachelle Selzer, chief mental health counselor, Employee Assistance Program, will present a 4-week assertiveness training workshop which is open to all interested employees.

The 1-hour workshops will be held on Mondays, July 20, 27, and August 3, and 10, from noon to 1 p.m., in Bldg. 31, Rm. B2C-07.

The group is limited to 15 participants. For an interview, call 496-3164. □



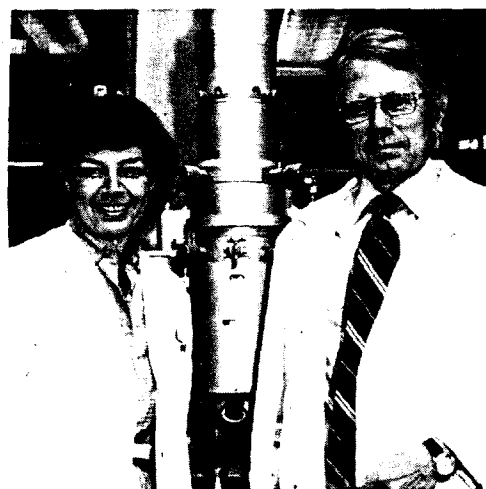
Sven E. Rodenbeck (I), environmental engineer at the NIH Division of Safety, was recently awarded a plaque for outstanding performance with the Public Health Service at the Rocky Boy Indian Reservation Service Unit in Montana. Mr. Rodenbeck, who worked at the reservation for 2 years before joining NIH this February, was commended for his management of 11 construction projects, totaling \$1.3 million, to provide sanitary facilities at the reservation. Dr. W. Emmett Barkley, division director, presented the award on behalf of the Billings area office of the Indian Health Service.

## Dr. W. King Engel Leaves NINCDS in July

Dr. W. King Engel, chief of the Neuromuscular Diseases Section, NINCDS intramural program, is leaving in July to become chief of the division of neuromuscular diseases and professor of neurology and pathology at the University of Southern California School of Medicine, Los Angeles.

He will also be director of the Center for Neuromuscular Diseases at USC's Hospital of the Good Samaritan and director of the USC Muscular Dystrophy Association Clinic.

Dr. Engel is a world authority in clinical and basic research involving diseases of muscle, neuromuscular junctions, peripheral nerves, and upper and lower motor neurons, and in the clinical management of those diseases.



Dr. Engel and his wife and colleague, Dr. Valerie Askanas, are leaving NIH for Los Angeles. Over the years, Dr. Engel has trained more than 100 neurologists in the field of neuromuscular diseases.

An NINCDS staff member since 1956, he has authored or coauthored over 350 publications. He has been investigating pathogenic mechanisms as well as new treatments for such diseases as polymyositis, myasthenia gravis, and dysimmune neuropathies.

His research studies also include amyotrophic lateral sclerosis, the muscular dystrophies and other myopathies, and various peripheral neuropathies.

One of Dr. Engel's most recent efforts has involved the treatment of polymyositis, myasthenia gravis, and dysimmune neuropathies with a technique known as total body irradiation.

Dr. Engel is a clinical professor of neurology at the George Washington University School of Medicine and a medical director in the PHS. In 1962 he was presented the S. Weir Mitchell Award of the American Academy of Neurology, and in 1971 was awarded the Public Health Service Meritorious Service Medal. □

Give me the benefit of your convictions, if you have any, but keep your doubts to yourself, for I have enough of my own.—Goethe □

## Math Research Chief Retires After 24 Years

Dr. John Z. Hearon, NIADDK Mathematical Research Branch, recently retired from Federal service after serving as branch chief since 1961.

Dr. Hearon directed research on the mathematical and theoretical aspects of biological problems. His own particular research interests included compartmental analysis, and problems in linear algebra and matrix theory arising from kinetic problems in biology.

He came to NIH as a senior research fellow in 1946. From 1948 to 1957, he was assistant professor of physiology at the University of Chicago, then senior mathematician at the Oak Ridge National Laboratory, and later, analysis counselor to the technical director at the Naval Medical Research Institute. He rejoined NIH in 1957 as chief, NIADDK Office of Mathematical Research.

Dr. Hearon, a charter member of the Society of Mathematical Biology, has served on the society's board of directors.

He is the author of more than 75 published papers and has participated extensively as a referee for most of the prominent journals in his field. He has also been an associate editor for *Mathematical Bioscience* and *Computers in Biology*, and a member of the publication board of the *Bulletin of Mathematical Biology*.

A native of Sumter, S.C., Dr. Hearon received a B.S. in pre-med from the Citadel in 1941. He received an M.S. in biochemistry in 1942, and a Ph.D. in biochemistry in 1944 from the University of Michigan. He was the second person ever granted a Ph.D. in mathematical biology from the University of Chicago, awarded in 1950.

Dr. Hearon will be returning to Sumter, S.C. □

## Visiting Scientist Program Participants

### Sponsored by Fogarty Internat'l Center

- 6/1—Dr. Abdur Razzaque, Bangladesh, Laboratory of Molecular Carcinogenesis. Sponsor: Dr. Andrew Peacock, NCI, Bg. 37, Rm. 3D10.
- 6/1—Dr. Nobukuni Terata, Japan, Laboratory of Immunobiology. Sponsor: Dr. Herbert J. Rapp, NCI, Bg. 37, Rm. 2B20.
- 6/1—Dr. Celina Tsang, Hong Kong, Clinical Pharmacology Branch. Sponsor: Dr. Michael Boyd, NCI, Bg. 10, Rm. 6N111.
- 6/5—Dr. Jacques Treton, France, Laboratory of Vision Research. Sponsor: Dr. Joram Piatigorsky, NICHD, Bg. 6, Rm. 222.
- 6/8—Dr. Sylvia Fargion, Italy, Pediatric Oncology Branch. Sponsor: Dr. Arthur Levine, NCI, Bg. 10, Rm. 3B12.
- 6/8—Dr. Hiroki Namba, Japan, Laboratory of Cerebral Metabolism. Sponsor: Dr. Louis Sokoloff, NIMH, Bg. 36, Rm. 1A27.
- 6/15—Dr. Chen-ting Chen, China, Laboratory of Central Nervous System Studies. Sponsor: Dr. Carleton Gajdusek, NINCDS, Bg. 36, Rm. 5B25.
- 6/15—Dr. Peter Van Bladeren, The Netherlands, Laboratory of Bioorganic Chemistry. Sponsor: Dr. Donald Jerina, NIADDK, Bg. 4, Rm. 214.
- 6/17—Dr. Toshio Hattori, Japan, Laboratory of Immunodiagnosis. Sponsor: Dr. Thomas Hoffman, NCI, Bg. 10, Rm. 8B03.

## Dermatology Group Discusses Skin-Related Research

The second annual *Ad Hoc* Interagency Dermatology Working Group, chaired by Dr. Laurence Miller, Skin Diseases Program director, NIADDK, recently met at NIH to share highlights of skin-related research supported by Federal agencies.

Representatives from DRR, FDA, NCI, NIADDK, NIAID, and NIEHS discussed clinical research on primary skin disease and on systemic disease with secondary skin manifestations, as well as basic studies on skin as a model for cell biology and as a tissue organ from toxicity testing.

Heinz Eiermann, director of the Division of Cosmetic Technology, FDA, told members that dermatotoxicology—the study of disease induced by exposure of the skin to toxic agents—is the “toxicology of the future.”

In the past, he noted, more emphasis has been placed on research on the toxic effects of ingesting foods containing substances such as nitrosamines. Concern is developing in the medical community, however, about the systemic effects that these substances, which are contained in higher concentrations in cosmetics, may have when they penetrate the skin.

He said more research is needed on how substances penetrate the skin because the effect of certain additives, some of which are carcinogenic, is cumulative. As an example, he cited the widespread and long-term use of cosmetic preparations containing safrol.

Mr. Eiermann emphasized that FDA supports research on the safety, not the efficacy, of cosmetic preparations. Citing FDA-supported studies by the North American Contact Dermatitis Group, Mr. Eiermann said that half of all skin reactions were caused by cosmetics.

Other topics of discussion included microcirculation monitoring as a predictor of amputation success; skin problems affecting older people, including actinic skin damage and decubitus ulcer; the effect of the new synthetic retinoids on acne and psoriasis; immunodermatology; and wound healing.

Further information may be obtained from Dr. Richard Lymn, executive secretary, Interagency Dermatology Working Group, 496-7495. □



A special achievement cash award was presented to the entire staff of NIAID budget office recently for overcoming an unusually heavy workload by working extra hours, often under extreme pressure, from Dec. 1, 1980 to May 31, 1981. Dr. Richard M. Krause, Institute Director, presented the award to (l to r) Nancy Galinat; Yvonne du Buy, budget officer; Eva Glow Gerard; and Linda Rodman.

## NIH Writers Win 8 Blue Pencil Awards

The publication, *Alzheimer's Disease: A Scientific Guide for Health Practitioners*, produced by NINCDS, won first prize in the recent annual Blue Pencil awards from the National Association of Government Communicators. This award was one of eight received by NIH components.

The Blue Pencil awards are given annually for government publications in 15 different categories. All entries were judged by nongovernment experts.

The first-place award in category 3A, technical publications over 16 pages, one color, was presented to Robin Henig, free-lance writer, and Agnes Reday, editorial assistant in the NINCDS Office of Scientific and Health Reports. The publication was judged "a thoroughly readable, practical document, marred by no superfluous and tasteless embellishments of any kind."

The third-place prize was also won by NINCDS in the category 2B, popular publication over 16 pages, two or three colors, with the pamphlet, *Cerebral Palsy: Hope Through Research*. It was written by staff member Joan Wilentz, with editorial assistance by Agnes Reday.

The National Heart, Lung, and Blood Institute also received four awards in the competition. In category 3A, technical publications over 16 pages, one color, a second

place was awarded to the NHLBI staff for *Proceedings of Ischemic Heart Disease, Specialized Centers of Research, Annual Scientific Meeting, May 8-9, 1980*.

Another second place award was won by NHLBI for their *Eighth Report of the National Heart, Lung, and Blood Advisory Council*. This was in category 10, serials other than magazines or newspapers.

The National High Blood Pressure Education Program, NHLBI, won two awards. The pamphlet, *Questions About Weight, Salt, and High Blood Pressure*, won third prize in the folders, brochures, leaflets, 16 pages or fewer, category. An honorable mention was won in category 6B, technical books, with *Audiovisual Aids for High Blood Pressure Education*.

The National Cancer Institute won a third prize in category 6A, popular books, for *Taking Time: Support for People with Cancer and the People Who Care for Them*. It was written by Joan Hartman, Office of Cancer Communications.

An honorable mention was awarded in category 10, serials other than magazines or newspapers, to the Division of Research Resources. The prize was presented to James Augustine, editor, for the *1979 Program Highlights, Division of Research Resources*. □

## Dr. Bruce D. Weintraub Given Oppenheimer Award

Dr. Bruce D. Weintraub, senior investigator, Clinical Endocrinology Branch, NIADDK, and director, NIH Interinstitute Endocrinology Training Program, was presented the 1981 Ernst Oppenheimer Memorial Award, at the annual Endocrine Society meeting in Cincinnati last month.

The \$3,000 Oppenheimer Award is presented to investigators under the age of 41 for pioneering methods, as well as new concepts in endocrinology.



James E. Prather has been selected as administrative officer for the Office of the Director, National Cancer Institute. Mr. Prather has held several administrative positions in the Institute since starting there in 1972, and later gained experience in the field of grants and contracts. His most recent position was contract specialist in the Division of Cancer Control and Rehabilitation.

Dr. Weintraub was cited for "innovation and thoroughness" in his research on glycoprotein hormones, their biosynthesis, circulating forms, and target cell interactions and effects.

In recent years, he and his associates, Drs. Ione Kourides, Linda Giudice and Mrs. Bethel Stannard, have elucidated the fundamental mechanisms of thyroid-stimulating hormone biosynthesis and secretion.

Using cell-free and intact cell systems, they have shown that alpha and beta subunits are synthesized from separate messenger RNA, initially as nonglycosylated precursor forms containing an aminoterminal extension peptide.

Cleavage of this "signal" peptide and specific addition of carbohydrate residues are necessary before the subunits can combine to form active TSH.

With Dr. Fredrika Pekonen, Dr. Weintraub has also developed new methods to study the interaction of TSH with its receptors on thyroid cells and on purified plasma membranes.

His early collaborative research accomplishments include the characterization of the synthesis and physicochemical and combining properties of alpha and beta subunits of chorionic gonadotropin; the development of sensitive and specific radioimmunoassays for TSH and its alpha and beta subunits; and the discovery of a new form of hyperthyroidism caused by pituitary resistance to thyroid hormone, which led to the identification of additional patients with inappropriate TSH secretion.

Dr. Weintraub is currently leading the Clinical Endocrinology Branch investigations on the use of cytopheresis in the treatment of Graves' disease. □

## Audrey Levy Retires; Active Community Worker

Audrey Levy, secretary to the director of the Division of Research Resources, has retired after 22 years in Federal service.

A native of Atlantic City, N.J., Mrs. Levy began her civil service career in 1942 with the U.S. Army Signal Corps as a CAF-2 clerk-typist. She eventually became a secretary in the newly completed Pentagon building. She resigned in 1951 to keep house and raise three daughters.

In 1966, she resumed her career in government, joining the Division of Research Facilities and Resources (now the Division of Research Resources) as a part-time secretary. She went to permanent status in 1971 and was appointed secretary to the DRR Director in 1974. Mrs. Levy is the recipient of three HEW and HHS special achievement awards during her career.

Extremely active in community affairs, she is the past president of both the Ladies Auxiliary of the Jewish War Veterans Post 381, and the D.C. Ladies Auxiliary of the Jewish War Veterans. She represented the auxiliary as standardbearer at the annual Arlington Cemetery Memorial Service for 20 consecutive years. She was also a Girl Scout leader for 7 years and served as membership chairman for the neighborhood area in Silver Spring.

### Received JWV Award

Mrs. Levy received numerous awards and citations for volunteer hospital work at the Walter Reed Army Hospital. She is also the recipient of the JWV Americanism Award, earned for her leadership in arranging and hosting receptions for "new Americans" at the District Court.

"After these foreign-born people were sworn in as citizens, we greeted them and tried to make them feel they were real Americans," she says. "Their reactions to a little friendliness were amazing. These receptions were truly gratifying experiences."

Mrs. Levy and her husband, Irvin, a retired Naval Research Laboratory electronic engineer, plan to spend most of their time in Pembroke Pines, Fla.



Mrs. Levy participates in community affairs wherever she goes. She is now busily engaged in editing the weekly condominium newsletter in Florida.

## Resigning Director Has Made No Definite Plans on Future

"NIH is in the very marrow of my bones." Dr. Donald S. Fredrickson summed up his feelings when he wrote these words in his letter of resignation to HHS Secretary Richard S. Schweiker on June 17.

The 56-year-old scientist and administrator stepped down on June 30 from the NIH "dais" after 28 dedicated years in the laboratory and as a brilliant leader in the biomedical research community. However, his prime interest still remains in the biomedical research field. In addition to his reputation and prominence as the NIH Director for the past 6 years, he is recognized internationally for his work on lipid metabolism.

He now goes to the National Academy of Sciences as a visiting scholar for a possible interim 1-year period. "I'm doubtless going to be working on one or more tasks that the new president, Dr. Frank Press, either wishes to initiate or continue," he said. "They could very well relate to the funding of research or funding of science."

With regard to his future plans after the NAS "bridging period," the articulate spokesman for NIH said that he had no definite plans or commitments at this point.

"I haven't had a chance to think for 6 years," he laughed. "Within a week or so, with some rest, things will probably start bubbling up there. I'll start sorting out things again."

He continued, "I'm really going to sort out my options. I may be talking about science (at the bench), but I may also be thinking about getting back into teaching medicine. I really have not closed down all possible avenues from this big intersection where I now stand."

Further elucidating his feelings about his situation at this juncture of his life and career, Dr. Fredrickson reflected, "Well, you arrive at a certain point where you get to have one or more chances (for change). For instance, I might return to lipid metabolism research. I don't have any illusions about how difficult it would be to get back into the 'wet lab' again to pick up all those new techniques. I think it would not be the most probable situation I would end up in, but I wouldn't want to rule it out. However, I



Dr. Fredrickson's driver, James V. Carter, bids farewell to him on the steps of Bldg. 1.

certainly feel there are more than just a couple of choices."

In discussing hobbies and interests, Dr. Fredrickson laughingly confessed that he sometimes played "hard Bach" on the piano. He also indicated that he might take lessons to further perfect his piano technique in playing the classics.

Asked whether he played the piano in the evenings to relax and unwind from the pressures of office, he replied, "Not necessarily. I never felt the pressures to be too heavy. Of course, I've gotten downright tired by lots of writing, but I never minded the so-called pressure."

With regard to the irritations of office and unexpected setbacks encountered every now and then in Bldg. 1, he cheerfully said, "Yes, there are a lot of irritations encountered as head of an organization such as this, but that's part of the attraction of this job. You're always faced with something different. The challenge is there and there is always something that offers the chance for creative solutions."

Dr. Fredrickson appeared to be very optimistic about the situation when discussing the present unsettled conditions affecting government employees.

"We are in transition," he said. "The important thing for everybody to remember is that all social institutions . . . certainly those in government . . . are going through change in this transition. But NIH is among the most stable, because its purposes are eternal."

"All institutions like ours may be experiencing the transition . . . but for some years we have been setting course, and adjusting our course in anticipation for austerity . . . battling down for the winds that we may encounter."

"NIH will survive because its purpose is just that important to mankind. You can't prevent our going on to discover."

As a last note, Dr. Fredrickson had this to say about his stay at NIH: "I am really grateful that I had the opportunity to lead this remarkable institution . . . and it is that. It is absolutely something special. I've been here 28 years, and I don't think there is any

## Some Epilepsy Drugs Cause Birth Defects in Animals

Several drugs used to manage epilepsy have recently been found to cause birth defects in animals under study by Dr. Sergio Fabro and fellow researchers of the National Institute of Environmental Health Sciences.

Based on this information, physicians are currently advised to evaluate all data on these medications before prescribing them to women of childbearing age.

Approximately 2 million people in the United States suffer from epilepsy, of whom the vast majority take medications to control their disorder. In 1857, epilepsy was first treated with bromides, used until 1912 when the drug phenobarbital was introduced.

Today, over a dozen different drugs are available, but a high frequency of birth defects have been found in children whose mothers were taking anticonvulsant drugs such as trimethadione and dimethadione.

Scientists in the Experimental Teratogenesis Section, Laboratory of Reproductive and Developmental Toxicology, NIEHS, are evaluating abnormal fetal development and the birth defect potential of chemically related compounds used in the management of epilepsy.

Since epileptic seizures vary, a wide range of drugs is available to manage this little-understood malady. Researchers studied two chemical classes: oxazolindione (trimethadione, dimethadione, and paramethadione), which are all anticonvulsants used for management of petit mal epilepsy; and succinimide (phenoximide, methsuximide, and ethosuximide), drugs used to treat other types of epileptic seizures.

The compounds were injected into mice which were then sacrificed and surgically examined. The uteri were removed and examined for the number of live, dead, or resorbing fetuses. Each live fetus was then weighed and examined for internal and external abnormalities.

Results showed that mice given the drug trimethadione, a derivative of oxazolindione, suffered abnormalities affecting the skeletal, circulatory, respiratory, genital, and renal systems.

Since women often do not know of their pregnancy until several weeks after conception, physicians are urged to prescribe to all women of childbearing age alternative drugs that cause less risk to the early development of the fetus. □



Belia L. Ceja, Dr. Fredrickson's secretary, assists him in clearing up a few last-minute details in his office.

other place where I could have stayed that long and felt so satisfied and so certain that I was engaged in something that really counted (the work of NIH)."

He continued, "Of course there are things we'd like to change. The amenities are slim. The buildings on campus are not covered with ivy, and we don't have many academic processions. Sometimes, all the things we do right down to the line get monotonous. But all in all, the purposes and actions at NIH are really deep and meaningful." □

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